

REMARKS

Claims 1-14 are pending in this application. Claims 1-11 and 13-14 have been amended to more clearly define and distinctively claim the invention. Claim 12 has been cancelled.

The title of the invention has been amended to more aptly describe the subject matter now claimed in this application.

Claims Objections

Applicants have amended the claims to properly introduce or referring to the subject with an appropriate adjective.

Claims 1-3, and 7-14 are Rejected Under 35 U.S.C. §102(b)

Claims 1-3 and 7-14 are rejected under 35 U.S.C. §102(a) as being anticipated by Coucoulas et al. (EP 0 631 162 A1). The Examiner stated that

Coucoulas (Figures 1-3) shows an optical module having an plurality of support 11, 12 having V-grooves 14, 15 coated with a contact layer in the form of a plurality of aluminum stripes 17, 18 at right angels to the groove for mechanical joint with a plurality of silica oxide fibers 13 by heating to 400° centigrade. Coucoulas discloses the use of masking and etching to form the grooves.

Claim 1 has been amended to recite "[an] optical module containing a support (T) in which a groove (VG) is introduced and an optical fibre (F) mounted in the groove (VG) characterized by a contact layer (CL) that is applied to the support (T) and comprises a plurality of strips extending essentially perpendicularly to the groove (VG) and that forms a mechanical joint with the fibre (F) when the fibre (F) is pressed into the groove (VG) in the form of a cold weld." (Emphasis Added).

In contrast, the design structure in the Coucoulas reference is distinctively different from Claim 1. The Coucoulas reference discloses the use of two V-grooves, a first and second V-grooves (14, 15) such that an optical fiber is located between the first and second grooves.

(Page 1, lines 11-22) (Emphasis Added). Claim 1 recites, in pertinent part, that “a groove (VG) is introduced and an optical fibre (F) mounted in the groove (VG)”. (See, for example, Figure 3) (Emphasis Added). Therefore, the Coucoulas reference requires an additional element, namely the second V-groove, to accomplish the fiber bonding.

Furthermore, the Coucoulas reference discloses a hot welding technique by heating the first and second grooves to cause bonding between the aluminum layer and the optical fiber. (Abstract) (Emphasis Added). Continuing on Page 3, line 45, Coucoulas heats the assembly to 400-450 °C. and a force of 2.5 kilograms for compressing the fiber between them. (Emphasis Added). This technique of heating and bonding requires the aluminum layer 17 on the first V-groove 14 and the aluminum layer 18 on the second V-groove 15 in which a heat source 22 applies heat to the aluminum layers 17 and 18 for bonding permanently to the fiber. (Page 3, lines 14-25, lines 26-35) (Emphasis Added). In Applicants' invention, Claim 1 recites, in pertinent part, that “forms a mechanical joint with the fibre (F) when the fibre (F) is pressed into the groove (VG) in the form of a cold weld”. (Emphasis Added). It can be argued that the Coucoulas reference teaches away from Applicants' invention by describing the use of a heat source to heat the aluminium layer 17 on the first V-groove 14 and the second aluminium layer 17 on the second V-groove 18 in order to effectuate the bonding to the fiber. On Page 3, beginning on line 14, the Coucoulas reference states that the purpose of the heat source is to heat the interface of the optical fibers 13 and the aluminum layers 17 and 18 as they are being compressed between the press members 20 and 21.

Claims 2-3 and 7-9 depend on Claim 1 and are patentable over the cited reference of Coucoulas for at least the same reasons described for Claim 1.

Independent method Claim 10 has been amended and includes similar limitations as Claim 1 in by reciting a method of producing an optical module containing a support (T) into which a groove (VG) has been introduced and an optical fibre (F) mounted in the groove (VG),

comprising the following steps: introduction of the groove (VG) into the support (T); application of a contact layer (CL) that is composed of a plurality of strips extending essentially perpendicularly to the groove (VG) and that forms a mechanical joint with the fibre (F) when the fibre (F) is pressed into the groove (VG); and pressing of the optical fibre (F) into the groove (VG) in the form of cold welding. (Emphasis Added). The arguments presented above with respect to Claim 1 are also applicable to Claim 10.

Claims 11, and 13-14 depend on Claim 10 and are patentable over the cited reference of Coucoulas for at least the same reasons described for Claim 10.

Claims 4-6 Rejected Under 35 U.S.C. §103

Claims 4-6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Coucoulas et al. (EP 0 631 162 A1). The Examiner stated that

Coucoulas shows all the features of these claims except the number and size of strips in the form of narrow ribs. The instant invention does not provide any reasons or specific problems to be solved by these features. It would have been obvious to one having ordinary skill in the art at the time of the instant invention to provide these features because these require a mere duplication or selection of a size which involve only routine skill in the art.

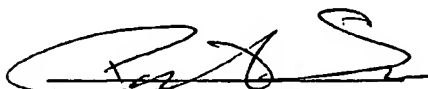
Claim 4 further limits Claim 1 by reciting that two and four strips having a width of about 200 μm each are provided. Claim 5 further defines Claim 1 by reciting a multiplicity of strips are provided that have a width of up to a few tens of micrometers. The Coucoulas reference does not teach or suggest the use of strips. The reasons or specific problems solved by these features are explained in paragraph 16. Therefore, it is respectfully submitted that Claims 4 and 5 are patentable over the cited reference of Coucoulas. In addition, Claims 4 and 5 depend on Claim 1 and are patentable over Coucoulas for at least the same reasons described for Claim 1.

Conclusion

Claims 1-11 and 13-14 are pending in this application. In view of the amendments to the claims and the above remarks, Applicants respectfully request allowance of these pending Claims. If the Examiner's action is other than allowance, the Examiner is invited to telephone Applicants' attorney at the number noted below.

Respectfully submitted,

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Date


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